REMARKS

Status of the Claims

Claims 1 to 39 stand rejected. Claims 1, 14, 19, 23, 24, 30, and 35 have been amended. New claims 40 to 44 have been added. Claims 5 and 6 have been cancelled by this amendment.

Rejections Under 35 USC § 112

Claims 1-18, 23-34 and 39 stand rejected under 35 U.S.C 112, second paragraph, as being indefinite for allegedly reciting a group of aliphatic amines and a group of hydroxyamines that were in conflict. Applicant asserts that the amendments made to the claims, as recited above, have overcome this rejection.

Rejections Under 35 USC § 102

Soula'802

Claim 19 was rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,094,802 ("Soula"), for the reasons set forth at pages 2 to 3 of the Office Action. Applicant respectfully traverses the rejection.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. MPEP § 2131. "The identical invention must be shown in as complete detail as is contained in the ... claim." Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Applicant's independent claim 19 recites, among other things, a reaction product of a treated amine and a compound selected from the group consisting of hydrocarbyl succinic anhydrides, Mannich adducts derived from hydrocarbyl-substituted phenols reacted with formaldehydes, ethylene-propylene copolymers grafted with ethylenically

unsaturated carboxylic groups, and copolymers of unsaturated acids and polyolefins, wherein the treated amine comprises a linear or branched aliphatic or an aromatic amine containing at least one primary or secondary amino group reacted with acrylonitrile or at least one homologue thereof, followed by reduction to the primary amine, with the proviso that the aliphatic amine is chosen from aminoguanidine bicarbonate, diethylene triamine, triethylene tetramine, tetraethylene pentamine, and pentaethylene hexamine, heavy polyamines and hydroxyamines, with the proviso that the aromatic amine is chosen from N-arylphenylenediamines; and with the further proviso that if the aliphatic amine is a hydroxyamine, the hydroxyamine is chosen from oligomers, polymers, aminoethylethanolamine, aminopropyldiethanolamine, partially propoxylated hexamethylene diamine, 3-amino-1,2-propanediol, tris(hydroxymethyl)aminomethane, and 2-amino-1,3-propanediol.

Soula fails to teach every limitation of the claims, as recited above. Instead, Soula teaches that N,N,N',N'-tetrakis-(3-aminopropyl)-ethylenediamine can be prepared by cyanoethylation of ethylenediamine with acrylonitrile. Column 2, lines 58-62. Because Soula fails to teach every limitation of the claims, no *prima facie* case of obviousness has been made, and the rejection should be withdrawn.

Soula'388

Claim 19 was rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,088,381, for the reasons set forth at pages 3 to 4 of the Office Action. Applicant believes that the Examiner intended to reject claim 19 over U.S. Patent No. 4,081,388 ("Soula'388) rather than U.S. Patent No. 4,088,381, and respond based on the Soula'388 reference. Applicant respectfully traverses the rejection.

Applicant's independent claim 19 recites, among other things, a reaction product of a treated amine and a compound selected from the group consisting of hydrocarbyl succinic anhydrides, Mannich adducts derived from hydrocarbyl-substituted phenols reacted with formaldehydes, ethylene-propylene copolymers grafted with ethylenically unsaturated carboxylic groups, and copolymers of unsaturated acids and polyolefins, wherein the treated amine comprises a linear or branched aliphatic or an aromatic amine containing at least one primary or secondary amino group reacted with acrylonitrile or at least one homologue thereof, followed by reduction to the primary amine, with the proviso that if the aliphatic amine is a hydroxyamine, the hydroxyamine is chosen from oligomers, polymers, aminoethylethanolamine, aminopropyldiethanolamine, partially propoxylated hexamethylene diamine, 3-amino-1,2-propanediol, tris(hydroxymethyl)aminomethane, and 2-amino-1,3-propanediol.

Soula'388 fails to teach every limitation of the claims, as recited above. Instead, Soula'388 teaches polyamines obtained by cyanoethylation of alkanolamines of formula (III), as set forth at column 3, lines 43-56. The formula (III) alkanolamines of Soula'388 are hydroxyamines that do not fall within the proviso of amended claim 19, and therefore would not result in Applicant's treated amines, as claimed. For at least this reason, every limitation of the claims is not taught. Accordingly, Applicant asserts that no *prima facie* case of anticipation exists, and the rejection should be withdrawn.

Rejections Under 35 U.S.C. § 103

Kluger

The Office has rejected claims 19 and 35 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,153,567 ("Kluger"), for the reasons provided at pages 5 to 6 of the outstanding Office Action. Applicant respectfully traverses the rejection.

Applicant's claims 19 and 35 recite, among other things, a reaction product of a treated amine and a compound selected from the group consisting of hydrocarbyl succinic anhydrides, Mannich adducts derived from hydrocarbyl-substituted phenols reacted with formaldehydes, ethylene-propylene copolymers grafted with ethylenically unsaturated carboxylic groups, and copolymers of unsaturated acids and polyolefins, wherein the treated amine comprises a linear or branched aliphatic or an aromatic amine containing at least one primary or secondary amino group reacted with acrylonitrile or at least one homologue thereof, followed by reduction to the primary amine.

Kluger fails to teach or suggest every limitation of the claims, as recited above. Instead, Kluger teaches polyamine substituted cycloaliphatic compounds, as set forth at columns 1-4. The cycloaliphatic compounds of Kluger are not treated amines comprising a linear or branched aliphatic or an aromatic amine containing at least one primary or secondary amino group reacted with acrylonitrile or at least one homologue thereof, followed by reduction to the primary amine, as claimed. For at least this reason, every limitation of the claims is not taught or suggested. Accordingly, Applicant asserts that no *prima facie* case of obviousness exists, and the rejection should be withdrawn.

Germanaud

The Office has rejected claims 1, 4, 7-9, 14-15, 18-19, 30-31 and 39 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,055,213 ("Germanaud"), for the reasons provided at pages 6 to 7 of the outstanding Office Action. Applicant respectfully traverses the rejection.

Independent claims 1, 14, 19 and 30 recite, among other things, a reaction product of a treated amine and a compound selected from the group consisting of hydrocarbyl succinic anhydrides, Mannich adducts derived from hydrocarbyl-substituted phenols reacted with formaldehydes, ethylene-propylene copolymers grafted with ethylenically unsaturated carboxylic groups, and copolymers of unsaturated acids and polyolefins, wherein the treated amine comprises a linear or branched aliphatic or an aromatic amine containing at least one primary or secondary amino group reacted with acrylonitrile or at least one homologue thereof, followed by reduction to the primary amine, with the proviso that the aromatic amine is chosen from N-arylphenylenediamines.

Germanaud fails to teach or suggest every limitation of the claims, as recited above. Instead, Germanaud teaches aromatic polyamines of formula I, as set forth at column 3, lines 5 to 60. The aromatic polyamines of Germanaud are not treated amines comprising a linear or branched aliphatic or an aromatic amine containing at least one primary or secondary amino group reacted with acrylonitrile or at least one homologue thereof, followed by reduction to the primary amine, with the proviso that the aromatic amine is chosen from N-arylphenylenediamines, as claimed. For at least this reason, every limitation of the claims is not taught or suggested. Accordingly, Applicant asserts that no *prima facie* case of obviousness exists, and the rejection should be withdrawn.

Germanaud in view of Papay

The Office has rejected claims 11-12, 16-17 and 21-22 under 35 U.S.C. § 103(a) as being unpatentable over Germanaud in view of U.S. Patent No. 5,652,201 ("Papay"), for the reasons provided at pages 7 to 9 of the outstanding Office Action.

For the reasons described above, Germanaud fails to teach all the limitations of the claims 1, 14 and 19. Claims 11-12, 16-17 and 21-22 depend either directly or indirectly from, and therefore include all the limitations of, claims 1, 14 or 19.

Papay fails to remedy the teachings of Germanaud. Rather, Papay is directed to oleaginous compositions comprising, among other things, one or more oil-soluble boron-free additive compositions formed by heating (i) at least one boron-free oil-soluble ashless dispersant containing basic nitrogen and/or at least one hydroxyl group, with (ii) at least one inorganic phosphorus acid such that a liquid boron-free phosphorus containing composition is formed. See Abstract.

Because Germanaud in view of Papay fails to teach or suggest the reaction product recited by the claims, no prima face case of obviousness exists. Accordingly, Applicant requests that the rejection be withdrawn.

Germanaud in view of either Lambert or Lambert and Papay

With regard to this rejection, Applicant believes that the Examiner intended to reject the claims over Germanaud in view of Lambert, rather than Soula in view of Lambert. Thus, Applicant's remarks are directed to Germanuad and Lambert.

The Office has rejected claims 30-32 under 35 U.S.C. § 103(a) as being unpatentable over Germanaud in view of U.S. Patent No. 5,888,947 ("Lambert"), for the reasons provided at page 9 of the outstanding Office Action. In addition, the Office has rejected claims 33-34 under 35 U.S.C. § 103(a) as being unpatentable over Germanaud in view of Lambert and Papay, for the reasons provided at page 10 of the outstanding Office Action.

For the reasons previously discussed above with regard to claim 30, Germanaud fails to teach or suggest every limitation of claim 30. Further, neither Lambert, as applied to claims 30 to 32, nor the combination of Lambert and Papay, as applied to claims 33 and 34, remedy the deficiencies of Germanaud.

Instead, Lambert is directed to vegetable oil based lubricants derived primarily from plants. Lambert, column 3, lines 57-61.

Papay is directed to oleaginous compositions comprising, among other things, one or more oil-soluble boron-free additive compositions formed by heating (i) at least one boron-free oil-soluble ashless dispersant containing basic nitrogen and/or at least one hydroxyl group, with (ii) at least one inorganic phosphorus acid such that a liquid boron-free phosphorus containing composition is formed. See Abstract.

Because neither Lambert nor the combination of Lambert and Papay remedy the deficiencies of Germanaud, no *prima facie* case of obviousness exists. For at least this reason, the rejections should be withdrawn.

Germanaud in view of either Lambert and Galka, or Lambert, Galka and Papay

The Office has rejected claims 10 and 24-27 under 35 U.S.C. § 103(a) as being unpatentable over Germanaud in view of Lambert, and further in view of U.S. Patent No. 6,427,647 ("Galka"), for the reasons provided at pages 10-11 of the outstanding Office Action. The Office also has rejected claims 28-29 under 35 U.S.C. § 103(a) as being unpatentable over Germanaud in view of Lambert, Galka and Papay, for the reasons provided at pages 11-12 of the outstanding Office Action. Applicant respectfully traverses these rejections.

Claim 10 is dependent on claim 1, and therefore includes all the limitations of claim 1. Claim 24 has been amended to include the proviso of claim 1, reciting the proviso that the aromatic amine is chosen from N-arylphenylenediamines. Claims 25 to 29 depend from claim 24. Accordingly, for similar reasons as described above for claim 1, Germanaud fails to teach all of the limitations of claims 10 and 24 to 29.

Galka does not remedy the deficiencies of Germanaud. Instead, Galka is directed to a fuel injection system for a large two-stroke engine. See column 1, lines 66-67. For the reasons described above, neither Lambert nor Papay remedy the deficiencies of Germanaud.

Thus, neither Germanaud in view of Lambert and Galka, as applied to claims 10 and 24-27, nor the Germanaud/Lambert/Galka and Papay combination, as applied to claims 28 and 29, provide a *prima facie* case of obviousness. Accordingly, Applicant respectfully requests that the rejections be withdrawn.

Germanaud in view of Smith

The Office has rejected claim 2 under 35 U.S.C. § 103(a) as being unpatentable over Germanaud in view of Smith, for the reasons provided at page 12 of the outstanding Office Action.

Claim 2 depends from, and therefore incorporates all the limitations of, claim 1. For the reasons set forth above, Germanaud fails to teach or suggest the limitations of claim 1.

Smith fails to remedy the defects of Germanaud. Instead, Smith is directed to synthesis of phenothiazine derivatives for use as antioxidants. Because Smith fails to remedy the teachings of Germanaud, no *prima facie* case of obviousness exists, and the rejection should be withdrawn.

Germanaud in view of Kapuscinski

The Office has rejected claims 13, 23, 35 and 36 under 35 U.S.C. § 103(a) as being unpatentable over Germanaud in view of U.S. Patent No. 4,877,415 ("Kapuscinski"), for the reasons provided at pages 12-13 of the outstanding Office Action.

Claims 13 and 23 depend from, and therefore incorporates all the limitations of, claims 1 and 19. For the reasons set forth above, Germanaud fails to teach or suggest the limitations of claim 1.

With respect to claims 12 and 23, Kapuscinski fails to remedy the defects of Germanaud. Instead, Kapuscinski teaches a graft polymer comprising an oil-soluble, substantially linear, carbon-carbon backbone polymer having bonded thereto (i) first graft units derived from a first monomer amine containing a polymerizable, ethylenically unsaturated double bond and (ii) second units derived from a second monomer

containing at least one nitrogen, sulfur, or oxygen in a heterocyclic ring compound. Column 1, lines 40-50. Because Kapuscinski fails to remedy the teachings of Germanaud, no *prima facie* case of obviousness exists, and the rejection should be withdrawn.

Regarding claims 35 and 36, the examiner asserts that the use of the additive of Germanaud in a fuel renders obvious the method of claims 35-36. See Office Action, page 13.

Claim 35 recites method for decreasing combustion chamber deposits and/or intake valve deposits in an engine comprising providing a fuel containing an additive comprising a reaction product of a treated amine and a compound selected from the group consisting of hydrocarbyl succinic anhydrides, Mannich adducts derived from hydrocarbyl-substituted phenols reacted with formaldehydes, ethylene-propylene copolymers grafted with ethylenically unsaturated carboxylic groups, copolymers of unsaturated acids and polyolefins, wherein the reaction product is oil soluble and has a number average molecular weight ranging from about 900 to about 50,000 as determined by gel permeation chromatography, and wherein the treated amine comprises a linear or branched aliphatic or an aromatic amine containing at least one primary or secondary amino group reacted with acrylonitrile or a homologue thereof, followed by reduction to the primary amine.

Neither Germanaud nor Kapuscinski teach the method of claim 35. Instead, as admitted by the Examiner, Germanaud is directed solely to lubricant compositions, and thus fails to teach or suggest employing additives in a fuel composition.

Further, contrary to the Examiner's assertions, Kapuscinski does not teach or suggest using the additives of Germanaud in a fuel. The additive relied upon in Germanaud is a very specifically disclosed alkylene polyamine of Formula I, having specifically positioned Ar, Ar', R1, X and amine groups. Germanaud, column 3, lines 15-37. Kapuscinski, on the other hand, merely generally recites a graft polymer comprising first and second graft units, as discussed above. Such a general disclosure by Kapuscinski does not provide motivation for using the particular alkylene polyamine of Germanuad in a fuel, where Germanaud specifically teaches it only for use in a lubricant.

For at least this reason, there is no suggestion or motivation for using the alkylene polyamines of Germanaud in a fuel. Without the requisite motivation, no *prima facie* case of obviousness exists, and the rejection should be withdrawn.

Kluger in view of Papay

The Office has rejected claims 21-22 and 37-38 under 35 U.S.C. § 103(a) as being unpatentable over Kluger in view of Papay, for the reasons provided at pages 13-14 of the outstanding Office Action.

Claims 21-22 and 37-38 depend from, and therefore incorporate all the limitations of, claims 19 or 35. For the reasons set forth above, Kluger fails to teach or suggest the limitations of claims 19 and 35.

Papay fails to remedy the defects of Kluger. Rather, Papay is directed to oleaginous compositions comprising, among other things, one or more oil-soluble boron-free additive compositions formed by heating (i) at least one boron-free oil-soluble ashless dispersant containing basic nitrogen and/or at least one hydroxyl group,

with (ii) at least one inorganic phosphorus acid such that a liquid boron-free phosphorus containing composition is formed. See Papay, Abstract.

Because Kluger in view of Papay fails to teach or suggest the reaction product recited in the claims, no prima face case of obviousness exists. Accordingly, Applicant requests that the rejection be withdrawn.

New Claims 40-44

New independent claim 40 recites, among other things, a fuel composition comprising a hydrocarbyl fuel and a reaction product of a treated amine and a compound, as set forth in the claims, wherein the treated amine comprises a linear or branched aliphatic or an aromatic amine containing at least one primary or secondary amino group reacted with acrylonitrile or at least one homologue thereof, followed by reduction to the primary amine, wherein the reaction product is in an amount effective for decreasing combustion chamber deposits resulting from combustion of the fuel as compared to combustion of a fuel devoid of the reaction product. New claim 41 depends from claim 41, and recites that the hydrocarbyl fuel is a diesel fuel.

Written description support for new claims 40 and 41 can be found, for example, from original claims 19 and 23, and the specification at page 3, lines 12 to 25; page 5, lines 16 to 17, and page 16, line 26 to page 17, line 2. Applicant asserts that claims 40 and 41 are allowable over the prior art of record.

New claims 42-44 incorporate the indicated allowable subject matter of cancelled claims 5 and 6. Accordingly, Applicant asserts that claims 42-44 are also allowable over the prior art of record.

CONCLUSION

In view of the foregoing remarks, Applicant requests reconsideration of the application, and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 50-2961.

Respectfully submitted,

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